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CLAIMS

What is claimed is:

1. A power supply regulator, comprising:

a power switch coupled between first and second terminals;

a control circuit coupled to switch the power switch;

a current limit circuit coupled to the power switch and the control circuit to control a current through the power switch, the current limit circuit having a peak current limit threshold (I_p); and

an oscillator coupled to provide the control circuit an oscillating signal, the control circuit to switch the power switch in response to the oscillating signal, the oscillating signal having an operating frequency (f) , wherein at least one of the peak current limit threshold (I_p) and the operating frequency (f) are adjusted to maintain a product of $I_p^m \cdot f^n$ substantially constant.

2. The power supply regulator of claim 1 wherein where m is substantially equal to 2 and n is substantially equal to 1.

3. The power supply regulator of claim 1 wherein the product of $I_p^m \cdot f^n$ of the power supply regulator is substantially constant with a product of $I_p^m \cdot f^n$ of another power supply regulator.

4. The power supply regulator of claim 1 wherein said at least one of the peak current limit threshold (I_p) and the operating frequency (f) are adjusted during manufacture of the power supply regulator.

5. The power supply regulator of claim 1, wherein the power supply regulator is part of a flyback converter power supply.

6. The power supply regulator of claim 1 wherein the power supply regulator is part of a buck converter power supply.

7. The power supply regulator of claim 1 wherein the operating frequency (f) is substantially constant during operation under all operating conditions of the power supply regulator.

8. The power supply regulator of claim 1 wherein the operating frequency (f) is substantially constant during operation under a fixed range of operating conditions of the power supply regulator.

9. A switched mode power supply, comprising:

an energy transfer element having an output coupled to an output of the switched mode power supply; and

a power supply regulator coupled to an input of the switched mode power supply and an input of the energy transfer element, the power supply regulator coupled to operate at an operating frequency (f) and coupled to detect a current flowing through the input of the energy transfer element substantially equal to a peak current limit detection threshold (I_p), wherein at least one of the peak current limit detection threshold (I_p) and the operating frequency (f) are adjusted to maintain a product of $I_p^m \cdot f^n$ substantially constant.

10. The switched mode power supply of claim 9 wherein where m is substantially equal to 2 and n is substantially equal to 1.

11. The switched mode power supply of claim 9 wherein the product of $I_p^m \cdot f^n$ of the switched mode power supply is substantially constant with a product of $I_p^m \cdot f^n$ of another switched mode power supply.

12. The switched mode power supply of claim 9 wherein said at least one of the peak current limit threshold (I_p) and the operating frequency (f) are adjusted during manufacture of the switched mode power supply.

13. The switched mode power supply of claim 9 wherein the switched mode power supply is a flyback converter.

14. The switched mode power supply of claim 9 wherein the switched mode power supply is a buck converter.

15. The switched mode power supply of claim 9 wherein the operating frequency (f) of the switched mode power supply is substantially constant during operation under all operating conditions of the switched mode power supply.

16. The switched mode power supply of claim 8 wherein the operating frequency (f) of the switched mode power supply is substantially constant during operation under a fixed range of operating conditions of the switched mode power supply.

17. A method, comprising:

switching a power switch of a power supply regulator at an operating frequency (f);

measuring a current through the power switch and maintaining the current through the power switch below a peak current limit threshold (I_p); and

adjusting at least one of the peak current limit threshold (I_p) and the operating frequency (f) to maintain a product of $I_p^m \cdot f^n$ substantially constant.

18. The method of claim 17 wherein where m is substantially equal to 2 and n is substantially equal to 1.

19. The method of claim 17 wherein the product of $I_p^m \cdot f^n$ of the power supply regulator is substantially constant with a product of $I_p^m \cdot f^n$ of another power supply regulator.

20. The method of claim 17 wherein said adjusting at least one of the peak current limit threshold (I_p) and the operating frequency (f) occurs during manufacture of the power supply regulator.

21. The method of claim 17 wherein the power supply regulator is included in a flyback converter power supply.

22. The method of claim 17 wherein the power supply regulator is included in a buck converter power supply.

23. The method of claim 17 wherein the operating frequency (f) is substantially constant during operation under all operating conditions of the power supply regulator.

24. The method of claim 17 wherein the operating frequency (f) is substantially constant during operation under a fixed range of operating conditions of the power supply regulator.

25. A power supply regulator, comprising:

a power switch coupled between first and second terminals;

a control circuit coupled to switch the power switch, the control circuit having a control threshold current, above which the control circuit is adapted to reduce a duty cycle at which the power switch is switched;

a current limit circuit coupled to the power switch and the control circuit to control a current through the power switch, the current limit circuit having a peak current limit threshold (I_p); and

an oscillator coupled to provide the control circuit an oscillating signal, the control circuit to switch the power switch in response to the oscillating signal, the oscillating signal having an operating frequency (f) , wherein at least one of the peak current limit threshold (I_p) and the operating frequency (f) are adjusted to maintain a product of $I_p^m \cdot f^n$ divided by the control threshold current substantially constant.

26. The power supply regulator of claim 25 wherein where m is substantially equal to 2 and n is substantially equal to 1.

27. The power supply regulator of claim 25 wherein the product of $I_p^m \cdot f^n$ divided by the control threshold current of the power supply regulator is substantially constant with a product of $I_p^m \cdot f^n$ divided by a control threshold current of another power supply regulator.

28. The power supply regulator of claim 25 wherein said at least one of the peak current limit threshold (I_p) and the operating frequency (f) are adjusted during manufacture of the power supply regulator.

29. The power supply regulator of claim 25, wherein the power supply regulator is part of a flyback converter power supply.

30. The power supply regulator of claim 25 wherein the power supply regulator is part of a buck converter power supply.

31. The power supply regulator of claim 25 wherein the operating frequency (f) is substantially constant during operation under all operating conditions of the power supply regulator.

32. The power supply regulator of claim 25 wherein the operating frequency (f) is substantially constant during operation under a fixed range of operating conditions of the power supply regulator.